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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/662,406	09/16/2003	Joong Seo Park	YHK-0119	9669
34610	7590	03/13/2006	EXAMINER	
FLESHNER & KIM, LLP P.O. BOX 221200 CHANTILLY, VA 20153			SHERMAN, STEPHEN G	
			ART UNIT	PAPER NUMBER

2674

DATE MAILED: 03/13/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/662,406

Applicant(s)

PARK ET AL.

Examiner

Stephen G. Sherman

Art Unit

2674

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 February 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) 1-4, 9-13 and 18 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 5-8 and 14-17 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 November 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Election/Restrictions

1. Claims 1-4, 9-13 and 18 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to nonelected species, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on 14 February 2006.

2. Applicant's election with traverse of Group II, claims 5-8 and 14-17 in the reply filed on 14 February 2006 is acknowledged. The traversal is on the ground(s) that the subject matter of each of the designated inventions is sufficiently related that a thorough search for the subject matter of each of the designated inventions would encompass a search for the subject matter of the remaining designated inventions. This is not found persuasive because while the inventions are related, the fact that the inventions involve using different means to accomplish the same goal make the embodiments clearly different and would each require a different class/subclass search, which places a burden on the examiner. See MPEP § 808.02.

The requirement is still deemed proper and is therefore made FINAL.

Drawings

3. The drawings are objected to because they include the following Figure not mentioned in the description: Figure 5C. Corrected drawing sheets or amendment to the specification to add the Figure in the description are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

4. The disclosure is objected to because of the following informalities:
- a) page 9, line 30 states "APL controller 17" which should read "APL controller 27."
 - b) page 10, line 11 states "...to thereby *calculates*" which should read "...to thereby *calculate*."
 - c.) page 11, line 11 states "*An* function and operation" which should read "A function and operation."

d) page 13, lines 22-23 refer to gray level *calculator* 7 where Figure 6 actually shows gray level *detector* 7.

e) page 14, line 28 states "APL controller 42" which should read "APL controller 67."

f) page 16, line 17 states "data driver 68" which should read "data driver 6."

g) page 16, lines 26-34 refer to Figures 7A and 7C as both being gray level distributions where there are many data having middle gray level of data for one frame, however, both Figures do not show data having middle gray level of data for one frame.

h) page 17, lines 14, 16 and 19 read "selector 83" which should read "selector 81."

i) page 19, line 16 reads "sub-field arrangement/alignment adjuster 8" which should read "sub-field arrangement/alignment adjuster 9."

Appropriate correction is required.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 5-6 and 14-15 are rejected under 35 U.S.C. 102(b) as being anticipated by Tajima et al. (US 6,222,512).

Regarding claim 5, Tajima et al. disclose a driving apparatus for a plasma display panel in which one frame period is time-divided into a plurality of sub-fields each given by a certain weighting value (Figure 1 shows a driving apparatus for a plasma display panel and column 15, lines 36-51 explain that the frame period is divided into a plurality of sub-fields.), said driving apparatus comprising:

a gray level detector for detecting a gray level distribution of a data (Figure 1, gray-scale level adjustment means 75 is said in column 16, lines 6-14 to establish which sub-frames having mutually differing sustained discharge are to be used, which the examiner interprets as detecting the distribution of the gray level data since the sub-field would be chosen based on the gray scale to be displayed.) and

an adjuster for adjusting at least one of the number of sustaining pulses and a sub-field arrangement in accordance with a gray level distribution of said data (Figure 1, the gray-scale level adjustment means 75 is stated in column 16, lines 1-14 to establish which sub-frames are to be combined and how these are to be arranged in sequence, and that if every sub-frame has a differing sustained discharge period and which sub-frames are used is changed then the number of sustaining pulses is also changed.).

Regarding claim 6, Tajima et al. disclose the driving apparatus as claimed in claim 5, wherein said adjuster adjusts both the number of sustaining pulses and a sub-field arrangement in accordance with the gray level distribution of said data (Please refer to the rejection of claim 5.).

Regarding claim 14, this claim is rejected under the same rationale as claim 5.

Regarding claim 15, this claim is rejected under the same rationale as claim 6.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

9. Claims 7-8 and 16-17 rejected under 35 U.S.C. 103(a) as being unpatentable over Tajima et al. (US 6,222,512) in view of Tanabe et al. (US 2003/0011626).

Regarding claim 7, Tajima et al. disclose the driving apparatus as claimed in claim 5.

Tajima et al. fail to teach wherein said adjuster reduces the number of sustaining pulses when gray levels of said data concentrate on a low gray level

Tanabe et al. disclose the driving apparatus as claimed in claim 5 wherein said adjuster reduces the number of sub-fields when gray levels of said data concentrate on a low gray level (Figures 8A-8H and paragraphs [0079]-[0088] show that when the gray scale number is high there is seven or eight subfields, which is an increase in the number of sustaining pulses compared to when there are less sub-fields, since each sub-field contains a sustain pulse as described in Tajima et al.).

Therefore it would have been obvious to “one of ordinary skill” in the art at the time the invention was made to use the sub-field reduction method taught by Tanabe et al. with the driving apparatus as taught by Tajima et al. such that the number of sustain pulses would be reduced/increased in order to produce less power consumption as compared to when the sustain process is performed in each sub-field.

Regarding claim 8, Tajima et al. disclose the driving apparatus as claimed in claim 5.

Tajima et al. fail to teach wherein said adjuster increases the number of sustaining pulses when gray levels of said data concentrate on high gray level

Tanabe et al. disclose a driving apparatus wherein said adjuster increases the number of sustaining pulses when gray levels of said data concentrate on high gray level (Figures 8A-8H and paragraphs [0079]-[0088] show that when the gray scale number is high there is seven or eight subfields, which is an increase in the number of

sustaining pulses compared to when there are less sub-fields, since each sub-field contains a sustain pulse as described in Tajima et al.).

Therefore it would have been obvious to "one of ordinary skill" in the art at the time the invention was made to use the sub-field reduction method taught by Tanabe et al. with the driving apparatus as taught by Tajima et al. such that the number of sustain pulses would be reduced/increased in order to produce less power consumption as compared to when the sustain process is performed in each sub-field.

Regarding claim 16, this claim is rejected under the same rationale as claim 7.

Regarding claim 17, this claim is rejected under the same rationale as claim 8.

Conclusion

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stephen G. Sherman whose telephone number is (571) 272-2941. The examiner can normally be reached on M-F, 8:00 a.m. - 4:30 p.m..

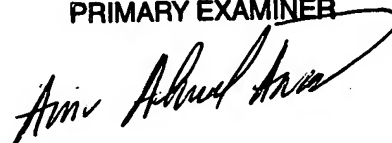
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amr Awad can be reached on (571) 272-7764. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

SS

22 February 2006

AMR A. AWAD
PRIMARY EXAMINER

A handwritten signature in black ink, appearing to read "Amir Abdul Awad", written over the printed name and title.